

LOCAL GOVERNMENT BOARD.

MEMORANDUM

ON THE

**PROVISIONS OF THE MINISTRY OF
HEALTH BILL, 1919,**

AS TO THE

**WORK OF THE MEDICAL RESEARCH COMMITTEE.
(Clause 3 (1), proviso (i).)**

Presented to Parliament by Command of His Majesty.



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PREFATORY NOTE BY THE PRESIDENT OF THE LOCAL GOVERNMENT BOARD (DR. ADDISON).

1. In view of the suggestions made in the course of the Debate on the Second Reading of the Ministry of Health Bill on the 26th February that it would be preferable to place the Medical Research Committee under the direct control of the Minister of Health rather than (as proposed in the Bill) to reconstitute it so as to enable it to act under the direction of a Committee of the Privy Council on the lines already adopted in the case of Scientific and Industrial Research, I think it desirable to lay before Parliament the attached Memorandum (prepared in March, 1918), upon which my discussions of this subject with various persons and bodies prior to the preparation of the Bill were based.

2. The proposal contained in the Bill was explained by the Parliamentary Secretary to the Local Government Board (Major Astor) in the Second Reading Debate (Official Report, 26th February, 1919, columns 1908-1910).

3. It may be added that the proposal is in accordance with the recommendation made by the Machinery of Government Committee in their recent Report (Cd. 9230) for the reasons explained in paragraphs 12 to 17 of Part I (pages 6 and 7), and Chapter IV (dealing with Research and Information) and Chapter IX (dealing with Health) of Part II of that Report (pages 22 to 35 and 58 to 63 respectively).

4. Further, the proposal was approved, after full discussion and examination, by the various representative bodies consulted prior to the preparation of the Bill, including the Ministry of Health Committee of the Royal College of Physicians and Royal College of Surgeons and the Ministry of Health Committee of the British Medical Association.

MINISTRY OF RECONSTRUCTION.

MEMORANDUM ON THE FUTURE ORGANISATION OF MEDICAL RESEARCH.

THE NATURE OF THE PROBLEM.

1. I am not sure whether it is sufficiently clear that the proposals in regard to the Medical Research Committee which are under discussion form a part only, though a very important part, of the general re-organisation of Government research work to which I am confident that we must look forward.

2. These proposals must be considered in relation to the present and future organisation of other kinds of research (including medical research) bodies; and all schemes of re-organisation have one feature in common, which I am afraid may not have been sufficiently emphasised.

3. I refer to the fact that the present proposals do not mean that we are being asked to advise whether *all* medical research should be carried out through a body in close relation to the Ministry of Health, or whether *no* medical research should be carried out by such a body. This is not the question. The question is *how much* medical research can best be carried out by a medical staff in close relation to the administrative side of the Ministry, and how much can best be carried out by a body whose work will be less immediately directed towards the current administration of health matters.

4. This fact is of great importance, because it follows from it that, whether or not the Medical Research Committee continued to be attached to the Ministry of Health, at least as closely as it is now attached to the National Health Insurance Joint Committee, it would not be the case that all medical research carried out on behalf of the Government would be carried out through the Committee. The reasons for this are both practical and scientific, and the remainder of this Memorandum deals with them in that order.

PRACTICAL REASONS FOR RE-ORGANISATION.

5. The re-organisation of medical research work is a problem which extends beyond the Medical Research Committee itself. The Local Government Board, the Board of Control, the Ministry of Munitions, the Colonial Office, and the Departments concerned with national defence, are all at the present moment spending money on medical research, some of them using the Medical Research Committee as an agent for placing particular pieces of research in the best hands, and some of them acting independently. It has never been proposed that the Medical Research Committee, or any similar body which succeeds it, should prevent all other Departments from doing anything in the nature of medical research, and the question therefore is whether the valuable influence of the Medical Research Committee in preventing over-lapping inquiries and using the best scientific men can be maintained most effectively if it is organised on lines similar to those at present laid down, or under some different arrangement.

6. In order that a considered judgment on this question may be formed it is necessary to give some account of the relations which have existed, since the Medical Research Committee was first created, between the Committee and the Minister responsible for Health Insurance. The position is that the Medical Research

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Fund Regulations lay upon the Medical Research Committee the duty of framing schemes for research. Those schemes are submitted for approval, not to the Joint Committee as a whole, but to the Chairman of the Joint Committee, as the responsible Minister, in person. As soon as the Minister's approval has been given to a scheme, the Committee are left free to carry it into operation, and the Secretary to the Committee is responsible for seeing that the approved expenditure is not exceeded, and that expenditure is made, within the estimate, upon the proper heads of the scheme.

Although, therefore, the operations of the Medical Research Committee are under the control of the Minister responsible for Health Insurance, so that he would defend the proceedings of the Committee if they were criticised in Parliament, it will be seen that in practice the Minister relies upon the Medical Research Committee to select the objects upon which they will spend their income, and to frame schemes for the efficient and economical performance of their work. The Minister has, of course, always received a full explanation of their schemes from the Committee before giving his approval, but he has never sought to control their work, or to suggest to them that they should take one line rather than another, as all Ministers rightly do in the administrative work of their Departments.

7. There is, therefore, an important distinction to be drawn between this research work and all other work within the sphere of the Department, whatever its name; and the judgment of the eminent scientists who are members of the Medical Research Committee as to the value of this undertaking is perfectly clear. In their First Annual Report (1914-15, Cd. 8101, page 48) the Committee say that they "venture to acknowledge their indebtedness to the three successive Chairmen of the National Health Insurance Joint Committee under whom they have worked, for having allowed them the most complete freedom, within their constitution, to bring flexible and rapid assistance to the national need on occasions of emergency, with the least possible delay in the motion of constitutional machinery."

8. It may be asked, however, why, if the relations of the Medical Research Committee with the present Department are so satisfactory, they cannot be left as they are under the Bill establishing the Ministry of Health. The answers to this question are of two quite different kinds. There are, in the first place, some serious difficulties arising out of the present constitution of the Medical Research Committee, which will, in any case, have to be met as soon as the central administration of Health Insurance is altered, as it must be, by the establishment of a Ministry of Health. It is proposed to establish a Ministry for England and Wales only, with some consequential adjustments as regards Health Insurance in Scotland and Ireland. But the Medical Research Fund has from the first been deliberately made a single fund for the United Kingdom. It was necessary to take this course in order to make the best use of the comparatively small amount of money available, and the experience of the Committee has shown that for effective work the Committee must be in close touch with the best scientific activities in all parts of the whole Kingdom; in any given piece of research it may be necessary, or highly advantageous, to bring into association with work being done at one University or other centre the investigations by some other worker far remote, and belonging, perhaps, not only to another nation, but even to a different kind of scientific subject.

9. In the second place, the independence of the Committee has rested not only upon the particular constitution which was framed for them when they were appointed, but also upon the fact that the Insurance Departments in the six years of their existence have been so much absorbed in putting the Acts into operation and in improving their administration that they have had very little time to devote to health problems in the more scientific sense. It might appear at first sight that when a Ministry of Health is set up, and a more advanced health policy is adopted, as we hope it will be as soon as the Ministry is established, the arguments for keeping the Medical Research Committee closely linked with the new Ministry would be strengthened; but I think that on closer examination the arguments to the contrary are stronger.

10. A progressive Ministry of Health must necessarily become deeply committed from time to time to particular systems of health administration. The Minister of Health at any moment may be appointed by the Government on the ground that he is something of a scientist or takes a special interest in health matters. One does not wish to attach too much importance to the possibility that a particular Minister may hold strong personal views on particular questions of medical science or of its application in practice; but, even apart from special difficulties of this kind, which cannot be left out of account, a keen and energetic Minister will quite properly do his best to maintain the administrative policy which he finds existing in his Department, or imposes upon his Department during his term of office. He would, therefore, be constantly tempted to endeavour in various ways to secure that the conclusions reached by organised work under any scientific body, such as the Medical Research Committee, which was substantially under his control, should not suggest that his administrative policy might require alteration. The more active the administration of his Department the greater this danger becomes. It is essential that such a situation should not be allowed to arise, for it is the first object of scientific research of all kinds to make new discoveries, and these discoveries are bound to correct the conclusions based upon the knowledge which was previously available, and, therefore, in the long run to make it right to alter administrative policy.

11. Accordingly, any body of men engaged upon scientific research in medicine or any other field should be given the widest possible freedom to make their new discoveries, and to make them available for the use of the administrative Departments. This can only be secured by making the connection between the administrative Departments concerned, for example, with medicine and public health, and the research bodies whose work touches on the same subjects, as elastic as possible, and by refraining from putting the scientific bodies in any way under the direct control of Ministers responsible for the administration of health matters.

12. Further, it must be remembered that, even apart from direct interference by the Minister of Health, the Medical Research Committee, if it were specially attached to his Department, would tend to be too much absorbed in making researches into those problems which appeared at the moment to be of the most pressing practical importance. These problems must, of course, be effectively dealt with in the interests of the good administration of the Ministry of Health. It is for this reason that the Ministry must always conduct some researches through its own staff. The Department must also be in the closest touch with any body, such as the Medical Research Committee, which can give assistance in solving such practical problems. But, while it is essential that the administrative Departments should let the scientific body know what are the practical problems of the day calling urgently for enquiry, the scientific body should not be limited to dealing with the practical aspects of those problems. It has already been found in many cases that an enquiry started with a purely practical purpose has led scientific men into new enquiries, resulting in fresh discoveries which have been valuable for purposes quite distinct from the solution of the

original problem. It has been found equally that the solution of a particular problem has often come quite unexpectedly from scientific work in some other direction, that would have been thought at first sight to be wholly remote from it.

13. This freedom to pursue scientific enquiries in any direction which may increase scientific knowledge of any kind is implied in the words of the Act of 1911 which refer to medical research. At the outset of the Medical Research Committee's work it was clearly understood that they should not be limited to enquiring into problems arising out of the current administration of the National Insurance Acts, but that they could enquire into any subject which was covered by the words "Medical Research." In fact, as is well known, the main energies of the Committee have been devoted, ever since the outbreak of war, to the investigation of practical problems arising in the course of the work of the Admiralty, the War Office, and the Air Force. It is not suggested that those problems, or the other problems which the Committee had begun to investigate before the war, have no bearing upon the health of insured persons in particular, but the subjects for investigation have always been selected by the Committee on account of their general medical and scientific importance, and not because the Insurance Department thought that these subjects should have the first claim upon the time and funds of the Committee.

14. A further important argument against associating the Committee with a single strong administrative Department is that this course would undermine the confidence at present felt in the Committee by the large number of Departments which have from time to time made demands upon the Committee's services. If the Committee is to continue to be of the fullest service to all Departments which want advanced scientific research in medical subjects to be undertaken on their behalf, it must continue to work in friendly relations with the medical and other officers of all such Departments, and to have free access to the Departmental papers, which may often be of a confidential character.

15. But it is certain that if the Committee were known to be working in specially close relation with a progressive Ministry of Health, and also to be substantially under the control of the Minister, all other Departments would begin to object to using the Committee and giving it full information, and would do their best to conduct the whole of the medical research which they required through their own officers. This would prevent any single body, such as the Medical Research Committee, from having under their view the whole of the medical research which was being done on behalf of the Government, and would make impossible the proper distribution of the work between the separate Departments and the medical research body which should be the common helper of all Departments.

This consideration bears very closely upon those reasons for re-organising the Medical Research Committee which are of a scientific rather than a practical character.

SCIENTIFIC REASONS FOR RE-ORGANISATION.

16. The progress of scientific knowledge is making it more and more clear that enquiries begun in one branch of science may always lead to discoveries which have an important bearing upon problems in quite different branches of science. In order to show the practical importance of this point, I am very glad to be able to circulate as an Appendix a note by Sir W. M. Fletcher, K.B.E., M.D., F.R.S., Secretary to the Medical Research Committee, of instances in which results of this kind have actually been attained in consequence of enquiries originally undertaken by the Medical Research Committee.

17. The value of these results is obvious, and if we are to make sure of turning similar results to full account in future, we must take steps to bring into the closest possible association all the branches of scientific research which are under the control of the Government.

THE PROPOSED SCHEME OF RE-ORGANISATION.

18. The best method of dealing with the position of the Medical Research Committee, in view of the considerations both practical and scientific which have been outlined above, has been very fully discussed, with special regard to the position which will arise on the establishment of a Ministry of Health. It appears to me, in the light of these considerations, bearing in mind the desirability of organising each branch of Government research so as to enable all the branches ultimately to be brought close together, that the best course in regard to the Medical Research Committee is to follow the precedent already set up in the establishment of the Advisory Council for Scientific and Industrial Research. The Medical Research Committee would, if this course be followed, be brought into an analogous relation to a Committee of the Privy Council under the Lord President, who would be the Minister responsible to Parliament for the expenditure of the moneys involved. If the Lord President remain in the future a member of the House of Lords, one of the Ministerial members of the Privy Council Committee could be made answerable for medical research matters in the House of Commons.

19. The advantages of this course are chiefly the following:—

- (a) Complete concentration is secured of the activities proper to a central medical research body acting for the United Kingdom as a whole.
- (b) A wider concentration and exchange of knowledge is at the same time secured, for the Privy Council is the only Department which has an Imperial range. This has immediate importance, for corresponding research bodies have already been set up by the Canadian, South African and Australian Governments,* and with all these the work of the Medical Research Committee should be brought into touch.
- (c) Working in relation to the Privy Council, the Medical Research Committee would be freed from any undue pressure brought by the immediate interests of any particular administrative Department, and would be in a position to serve all alike. Plainly, its activities must be linked most closely at many points with those of the proposed Ministry of Health, and special arrangements will need to be made for this purpose on the establishment of the Ministry.

* Report of the Committee of the Privy Council for Scientific and Industrial Research, 1916-17 (Cd. 8718), pp. 31-33 and Appendix iv.

- (d) Direct advantage may be expected from the close association, in work done side by side, of those two Research bodies, and there would be no difficulty in assimilating other branches of Government Research (*e.g.*, Agricultural and Veterinary Research) into such an organisation.

Already at many points the Advisory Council for Scientific and Industrial Research and the Medical Research Committee have common interests. A typical example—to give only one—is the scientific development of synthetic dyes, which, in addition to their commercial value in industry, provide stains needed in a great variety of scientific methods and yield antiseptics of great medical importance.

C. ADDISON.

March, 1919.

APPENDIX TO MEMORANDUM ON THE FUTURE ORGANISATION OF MEDICAL RESEARCH

By SIR W. M. FLETCHER, K.B.E., M.D., Sc.D., F.R.S., SECRETARY TO THE MEDICAL
RESEARCH COMMITTEE.

1. One of the important arguments in favour of a centralised State Department for research, whether in medicine or in other branches of science, is provided by the experience which has shown how often scientific research work arising out of practical problems of some one administrative Government Department has yielded accessory results of value quite outside the province of the administrative Department first concerned, and yet of such a kind as to be useful either to other Government Departments or to the advance of science in general. It is plain that these useful by-products of research work undertaken for a particular object are more likely to be brought to full use through a centralised research Department in touch with the scientific needs of all the administrative Departments, and in touch also with the general progress of science throughout the country. When, on the other hand, a piece of scientific work has been done within the walls, so to speak, of a single executive Department, it is not so likely, whether the work has been fruitful or not in its main object, that any useful secondary application of it will be brought specially to the notice of other Government Departments, whose internal needs may be unknown to the rest, or that any by-products of the work will be made rapidly helpful in general scientific progress.

2. It will be seen that this line of argument is independent of, although it enforces, the arguments for the centralisation of research work which are based upon the need for economy of effort and for the most effective mobilisation of all the scientific forces of the country. A few instances taken from recent experience may be quoted to show how the results of scientific enquiry in one direction may have valuable by-products either immediately useful for other practical purposes or leading to new discoveries in some other branch of science.

3. Everybody knows now, of course, that the practical fruits of enquiry commonly spring unexpectedly from work undertaken with quite other objects in view. It was work upon chemistry and crystallography that led Pasteur to his discoveries of fermenting microbes, and it was his work upon these in relation to the fermentation of beer that later bore fruit in Lister's discovery of the meaning of hospital gangrene, the infection of wounds by microbes and the use of antiseptics in defence. So, again, Röntgen's purely physical work in the laboratory gave as a mere by-product, utterly unforeseen, all the benefits that, first, surgery and, later, medicine have gained from X-Ray photography.

4. In smaller measure this yield of by-products in enquiry is found almost every day in science, whether in primary research work or in the secondary applications of science aimed at the immediate solution of practical problems. The following instances may be given from recent experience:—

5. (a) Effective apparatus was required for giving oxygen to soldiers suffering from the effects of poison gases. Scientific help was invited by the War Office in this matter, and as a direct outcome of this, improvements have been introduced into the long inadequate methods for giving oxygen to pneumonia patients in civil hospitals. New researches, moreover, connected with this work are now in progress which promise results of much scientific interest in physiology and of immediate practical value in medicine, in regard to a new treatment for certain diseased conditions by prolonged breathing of air enriched with oxygen. If this enquiry had been confined strictly to the immediate military objects at the Front these secondary lines of enquiry would have been left unopened. That is not all, however. The supply of oxygen to flying men at high altitudes became an urgent practical problem. Much time was saved at the beginning by transferring for the aid of the Flying Services some of the workers and their devices used already for the help of the Army. Fresh apparatus of various kinds has more recently been

devised for flying purposes, and new devices here will probably soon be transferred in return, so to speak, to War Office purposes, and may be applied also to aid the mine rescue work which belongs to the Home Office.

To these new and daily growing needs for oxygen others must be added. Very many lives are now being saved at the Casualty Clearing Stations in France by the use of oxygen with laughing gas as the anæsthetic when the patient is in a dangerous condition of shock. For these and the other medical purposes just mentioned, the problems of manufacture and transport are serious; the oxygen is compressed in heavy steel cylinders, of which the freight, empty or full, is more costly than the oxygen itself. The oxygen demands of the Army and of the Air Force are heavy and growing, and ought to be aided by close relation to other large commercial and engineering uses of oxygen. The Germans solve the chief problem of carriage by transporting oxygen in liquid form in receptacles like "Thermos Flasks," which were invented and, like liquid oxygen, first made (but not patented) by Sir James Dewar in London.

It is hardly possible to think of the proper co-ordination of this oxygen work on its medical side being effected by any but a centralised Department for research, or of its being brought into proper relation to analogous commercial and engineering work, unless the medical research organisation is linked closely with that for industrial science and research.

6. (b) In the first months of the war some work done for the Medical Research Committee by Dr. Dakin upon chlorine compounds as antiseptics for wound treatment resulted not only in the production of the well-known "Dakin" solution, since used very largely in the British, French, American, and also in the German Armies, but also later in the introduction of an organic chlorine compound known as Chloramine-T, which is a highly effective antiseptic and used both for wound treatment and for the disinfection of carriers of spotted fever and other diseases.

The introduction of Chloramine-T, however, led to further researches. Following the main line, it led to a further compound, Dichloramine-T, which is soluble in oil and is giving results of much promise already in France. By a side enquiry a closely related substance was produced, known for short as "Halazone," which has high disinfecting power, but, unlike the substance just mentioned, is more rapidly soluble in water and is almost tasteless in effective concentration. This is used in tablets for the disinfection of water bottles or of small local water supplies used by rapidly moving troops.

This close study of the special properties of Chloramine-T led further to the discovery of its way of action upon protein (*e.g.*, albuminous) substances, and already it has been found useful in pure bio-chemical work quite remote from any problems of antiseptics as an instrument by which some new transformations can be effected in organic compounds of biological importance.

7. (c) Early in the war the Home Office found immediate enquiry necessary into a fatal form of jaundice due to the use of tetrachlorethane as a "dope" for varnishing aeroplane wings. Equivalent substitutes have since been introduced which have greatly aided aeroplane manufacture. The study of this disease for the Home Office had close relation to the subsequent investigation, also undertaken on behalf of the Home Office, into the toxic jaundice arising in the large scale manufacture and use of T.N.T. (Trinitrotoluol) for high explosive shells. During 1916 and later, T.N.T. poisoning became a very serious problem for the Ministry of Munitions; many deaths resulted and a great deal of sickness, causing serious loss of output and of money. Investigation showed the best means of prevention, and during the past year (1917-18) T.N.T. sickness has almost ceased to exist.

The detailed study of the toxic jaundice due to these two kinds of poisoning has already found its place in a recent investigation into poisoning which is found occasionally to occur when Salvarsan is administered for the treatment of syphilis or other diseases. This form of Salvarsan poisoning, though rare, is a problem of importance at the present time to the Admiralty, to the War Office, and to the Local Government Board, and a Special Investigation Committee representing those three Departments has already been appointed by the Medical Research Committee, who, during the war, had undertaken, at the request of the Board of Trade, the biological testing of all Salvarsan and allied products sold in this country.

In this one branch of pharmacology, therefore, the Medical Research Committee have been concerned in work needed in varying degrees by no less than six of the great Government Departments. Even if those Departments had been able at a time of great pressure to initiate separate investigations of their own, there must inevitably have been much overlapping

and waste of effort, with many conflicting and disorganised claims upon the time of scientific workers of various kinds and at various centres in the United Kingdom.

The detailed study of T.N.T. poisoning by workers engaged for the Medical Research Committee has had at least one unexpected by-product of scientific importance, quite independent of the actual practical problems which were being attacked. A close chemical study of some of the impurities of T.N.T., with a view to finding how far these might be responsible for T.N.T. sickness, showed that a slightly abnormal form of T.N.T. had chemical properties which could be used for the further analysis of the actual chemical structure of the protein molecule. This has given a new instrument for biochemical work. Already it has borne fruit, and a substance called Carnosin, previously recognised as arising in the human body, has not only had its exact chemical structure revealed, but it has in consequence been already artificially synthesised for the first time in the chemical laboratory.

WALTER M. FLETCHER.